

Driving the Bus:
A Look into the Daily Work Experience
of Columbus, OH Bus Drivers

Undergraduate Research Thesis

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Abstract

According to the U.S. Census, currently an estimated five percent of Americans commute to work by public transportation, but this is expected to change (McKenzie and Rapino 2011). The demand for public transportation is expected to increase in the future as gas prices continue to rise and as the so-called Millennials, or Generation Y, become increasingly reluctant to own cars. Bus drivers provide a vital service every day to millions of Americans, yet there is little work on what it's like *to be* a bus driver and to do their job. There is a considerable amount of occupational health work conducted on urban bus driving and its adverse physical and mental effects. However, these studies have not really asked drivers what it's like *to be* a bus driver. Additionally, the existing work done on bus drivers has not asked drivers to identify activity hotspots on a map of their route. For this project, open-ended interviews were conducted with bus drivers from the Central Ohio Transit Authority (referred to as COTA). The interviews were conducted at COTA's downtown offices in the driver break room. Drivers were asked to identify hotspots along their route and to talk about their experiences on the job. Several surprises arose during the interviews including map reading difficulties and the revelation of an existing network of services between drivers. Reflection on the research process and future work are discussed.

Question

What is the everyday work experience of an urban bus driver and where do these experiences occur along their routes?

Research Objective

The objective of the project is to find out what it's like to be a city bus driver. What are the positive and negative experiences of the job? Most importantly, *where* are these positive and negative experiences occurring? The goal is to conduct an exploratory study that attempts to document and

describe the daily routine and work experience of a city bus driver. Additionally, the project aims to identify activity hotspots along the route of the driver in order to create a visual representation of their daily work experience (where are these job experiences occurring?) and speculate as to why these areas are being selected by drivers.

Introduction

According to a U.S. Census report on commuting in the United States, only five percent of Americans commute to work by public transportation (McKenzie and Rapino 2011). The use of public transportation, and therefore the demand for services, is expected to increase as gas prices continue to rise. Additionally, the so-called 'Millennials' or 'Generation Y' are increasingly open to transportation methods other than the automobile. Several recent news articles have detailed the problem that automakers face in marketing cars to a younger generation that is increasingly favoring public transportation options over purchasing a car (Linn 2010, Chozick 2012, Weissmann 2012). Car ownership rates are falling among those under thirty and rates are projected to continue falling through 2025 as younger people feel less obligated to own a car (Bernhart, Kleimann, Hoffmann, & Kalmbach 2011). As ridership begins to increase, demands to offer better, more efficient service will begin to be placed on existing public transportation systems that may not be equipped or prepared to handle the increase.

Bus drivers provide a vital, daily service for millions of Americans, yet there is limited writing on what it's like to be a bus driver. What is the daily work experience like? What might be done to improve working conditions? The demands placed on transit operators continue to increase and drivers are expected to be safe drivers, to police their passengers, and to be on alert for suspicious activity. It would be useful to understand their perspective on the positive and negative experiences of their job. Their insights and contribution to the conversation on public transportation might help towards the end goal of better, more efficient service for all.

One important factor in offering quality transit service is the occupational health and wellbeing of the transit vehicle operators. Drivers are increasingly responsible for not only keeping the bus on schedule but also policing their passengers as well as keeping a heightened sense of awareness for suspicious activity. But drivers face a unique set of occupational challenges because drivers must always 'be on'. According to the US Department of Labor's occupational database, O*NET, urban bus drivers require a wide variety of skills to perform their job correctly. Some of the skills that are vital to bus driving include time management and critical thinking. Also important are social perceptiveness and Judgment and decision making. O*NET also provides information about work context and lists, among other things, dealing with unpleasant or angry people as part of the job (O*NET OnLine, 2010).

The exploratory work conducted in this project will make contributions to the literature by exploring the incorporation of GIS and qualitative methods by attempting to map the everyday work experience of urban bus drivers. By considering *where* these experiences occur, new insights into the work experience of urban bus drivers can be uncovered.

Literature Review

There has been a considerable amount of work on both the physical mental health effects related to urban bus driving. Tse and colleagues have assembled a list of works involving urban bus drivers and their highlights are summarized in this review (Tse, Flin, & Mearns 2006). Morris and colleagues examined the health of urban bus drivers and conductors. Bus drivers, who remained mostly sedentary, tended to have higher rates of heart-disease and other physical health problems as compared to the conductors who were actively moving around (Morris et al. 1953a, 1953b). A later study led by Morris followed bus drivers over a period of five years and found higher rates of certain heart-diseases and physical ailments (Morris et al. 1966). Bus driving faces a high level of worker

absenteeism and there have been several works by Kompier and colleagues covering driver health and its relation to work absence rates among bus drivers (Kompier et al. 1990, Kompier & Di Martino 1995, Kompier et al. 2000). Evans examined epidemiological studies on the health effects of working as an urban bus driver and found high levels of job absenteeism as well as medical disabilities possibly linked to occupational stress. Evans suggested improvements such as electronic information signs to reduce driver inquiries as well as increasing the interactions between drivers and management through the use of study groups or meetings (Evans 1994).

Carrère and colleagues looked at job strain and occupational stress among urban public transit operators and found that bus driving appears to be associated with increased health risks. This research examined bus drivers with routes inside the city limits of Long Beach, California and involved the use of physiological measures (blood pressure, urine) as well as on-the-job observation (Carrère et al. 1991). Further work by Evans and Carrère looked at stress regarding traffic congestion and the lack of control over surroundings (Evans & Carrère 1991). Fisher and Jacoby used psychiatric instruments to assess bus drivers who had been victims of physical assault and found that about one quarter of the victims developed post-traumatic stress disorder (Fisher & Jacoby 1992). Evans and Johansson summarized the rationale for the scientific study of bus driving by arguing that previous research has shown urban bus driving to be an unhealthy occupation and that despite technological changes and innovations in work, transit operator jobs largely remain the same. The health of public transit workers has implications on those who depend on transit services and society at large (Evans & Johansson 1998). In examining the work fatigue of bus drivers, Biggs and colleagues used open-ended interviews and discussions with bus drivers to collect data for their study. With assistance from the transit company, focus groups were conducted at several bus depots and participants included workers from multiple departments in the company. The study was successful in identifying several fatigue factors such as keeping on time and interacting with passengers (Biggs, Dingsdag, & Stenson 2009).

There has also been work on bus transportation from the perspective of the riders. Bissell incorporated social theory in examining the everyday riding experience of passengers (Bissell 2010). Wilson looked at the different social connections and experiences that occur between passengers on the bus (Wilson 2011). Stradling and colleagues examined things that bus riders did and did not like about their travel experience. This study included both quantitative and qualitative analyses and found that riders prioritize safety both on the bus and while waiting for the bus (Stradling, Carreno, Rye, & Noble 2007).

Methodology

A qualitative approach was determined appropriate for this project because it provides a more in-depth, richer look at the challenges facing bus drivers rather than a quantitative analysis. A quantitative analysis was deemed inappropriate for this study because the research question could not have been answered using quantitative data collection methods. An application for Institutional Review Board (IRB) approval was submitted to the Ohio State University IRB and successfully completed. The IRB protocol number is 2011B0453.

The first step was to create a questionnaire that would help to guide the interviews. The questionnaire is as follows:

General Interview/Discussion Questions

1. How long have you worked at COTA?
2. How long have you been driving your route?
3. What's your typical day like?
 - a. Is it stressful, neutral, pleasant?
 - b. Does your mood change throughout the route?
4. What are some things that cause you stress or make your job more difficult? (Possible examples: snow/weather, problematic riders, traffic congestion, etc.)

5. What are some things that make you happy or make your job more enjoyable? (Possible examples: Socializing with regulars, being out on the road, etc.)
6. Is there anything you would want people to know about being a bus driver? What do people not know about driving a bus, but should?

"Most people don't realize this but..."
7. Are there any other comments or stories about your job that you would like to share?

The questions were selected to be open-ended and to leave room for surprising responses. Some basic data were collected regarding the employment history of drivers. Drivers were asked how long they had worked at COTA and how long they had been driving their current assigned route.

Interviews were conducted in an open-ended format that encouraged participating drivers to share their thoughts and comments on their daily work experience. The questions were asked to the participating driver by the interviewer. Participants' responses were recorded in a notebook and on the questionnaire. Interviews lasted between five and ten minutes. The length of time was chosen because drivers would be participating in the project during their break time and therefore may have limited time. It was learned that break times for the bus drivers can range from twenty minutes to several hours, depending on the driver's schedule.

The interviews were conducted at the Central Ohio Transit Authority's main office in downtown Columbus over a period of six weekdays. The interviewer was located in the lower level break room and interviews were conducted at one of the break room tables. The interviewer was available to conduct interviews as early as 8:00AM and as late as 7:30PM in order to catch as many participants as possible. The project was advertised by placing flyers around the break room and by verbally informing potential participants.

Eleven drivers were willing to sign the consent form and give interviews while approximately fifteen others were only willing to briefly chat with me about their experiences. Observations were also

made by listening to conversations about job-related activities between drivers. The interviewer also rode with several of the drivers along their routes while observing their interactions with passengers as well as observing the traffic and road conditions that existed. Several incidents were observed including arguments between passengers and the drivers as well as general traffic frequently passing in front of the bus.

Attempts were made to incorporate qualitative GIS methods into the study by having drivers identify and describe locations along their routes in order to create a visual representation of their work experience. This method was inspired by studies that asked Muslim women in Columbus, Ohio, to describe their daily routines and record their feelings of safe or unsafe. These feelings and journals were then coded and uploaded into a GIS software program (Kwan and Ding 2008, Kwan 2008).

To incorporate qualitative GIS methods, the research design involved showing drivers an interactive map of their route followed by an open-ended interview about their job. Drivers were asked to identify activity hotspots that occur along their route. Activity hotspots were defined to drivers as area of particular interest that could involve both positive and negative activities. For example, a positive activity might be looking forward to picking up a regular rider and socializing with them, while a negative activity might be the stress of a particular stretch of the route or a particular intersection. Drivers were then asked a series of open-ended questions about their job, including how long the drivers had been working for COTA as well as questions asking drivers to share any thoughts or comments regarding their job and ways it could be improved.

The interactive maps were prepared using a free online program called Scribble Maps (<http://www.scribblemaps.com/>). Scribble Maps allows users to write and draw directly onto the existing Google Maps interface. Scribble Maps also functions as a GIS by featuring several capabilities such as the ability for users to convert their 'scribbles' into KML files that can be uploaded into Google

Earth and manipulated in Google Earth's 3D environment. A separate map was created for each route with the particular route being lined in red and using the standard Google Maps background. The prepared interactive maps were presented to COTA drivers on a laptop computer and drivers were able to interact with the map by panning and zooming in and out. Figures 1 and 2 show sample screenshots of what the maps looked like.

A surprise came when the initial participants were unable to interpret the maps correctly when trying to identify activity areas. For example, one participant was motioning to the screen while trying to identify a section of High Street on bus route #2 as being problematic. Bus route #2 is primarily located along High Street and thus was lined in red on the map. The participant was motioning further west and did not even realize that High Street was marked by the red line. The participant was, however, able to easily name the streets and intersections associated with the stretch of the route he was thinking of. Other initial participants faced similar issues with using the map when talking about their routes and drivers tended to have an easier time referring to their routes in terms of the bus stops and intersections along their route. In retrospect, this makes total sense that drivers would have an easier time visualizing their route in terms that they deal with every day (bus stop names) rather than in a top-down map view. The decision was made to abandon the interactive map portion of the interviews and instead record the locational information mentioned by drivers during interviews.

What They Said

The mixed results of the mapping portion were surprising. I had thought that since bus drivers are on the road constantly, that they would easily be able to name specific activity hotspots with ease. When asked to identify hotspot locations on the map, most drivers had trouble identifying specific locations at smaller scales, like bus stops. However, drivers were able to identify general locations at a larger scale. For example, routes that contain a large number of schools, especially high schools, were

identified as being particularly problematic because of the number of teenage riders that had to be dealt with. Some drivers were able to provide more specific geographic information than other drivers. There could be several reasons for this inconsistency. Some drivers have driven their route longer and know their route better than newer drivers who have less experience. Being 'put on the spot' and asked to identify specific information without advance notice may have been difficult for participants and perhaps a follow-up or work experience log may have had better results in determining more specific geographic information.

Another surprise came in the revelation of a social network of sorts. Drivers spend most of their time working alone, yet I noticed many of the drivers knew each other in the break room and other common areas. I began asking the drivers how they knew one another despite spending so much time alone on the road. One woman responded by laughing and pointing to a bus driver that was standing behind us on his smoke break.

"See that guy over there? He owns a night club. A lot of us will go over there after work and hang out. You know there's a lot of people that do side stuff. There's a guy that does cabinets.

One guy owns a used car dealership. Several drivers' wives run a daycare."

She went on to explain that a lot of the drivers have jobs on the side and provide a variety of services, especially to other drivers. Interestingly, this particular driver was the only one who mentioned the existence of this network when I asked about knowing other drivers. One reason that no one else mentioned these outside services to me may have had to do with the other drivers being newer. The driver that mentioned this network of services to me had over twenty years of experience working at COTA and therefore more seniority. She may have just known everyone because of the amount of time she has been employed at COTA.

Further investigation of this social and economic network that exists between some drivers might provide insight into the existence of potential 'offline Facebook' networks and raises the question of whether or not networks like this exist in other occupations and, if so, why do they exist? For example, the reason that many of the drivers are able to hold these alternate occupations and provide these alternate services is largely due to the unique work schedule that bus driving provides such as multi-hour breaks during a split shift.

Another interesting surprise was that several drivers mentioned that they had taken the job because of the health benefits. One woman had to quit her job working at a Target warehouse because of a foot injury and so she needed a sitting job. By taking a bus driving job with COTA, she was able to not only have a sitting job but also carry the health coverage benefits for her family. Another woman mentioned that she and her husband had been previously self-employed through her husband's bar, but because of rising healthcare costs she took a bus driving job to get coverage for both herself and her husband. This woman acts as the bouncer at her husband's bar on the weekends.

Positive Experiences

Although comments and thoughts tended to focus on negative experiences and stressors of the job, there were a handful of conversations about positive experiences that the job brings. Socializing with passengers and helping lost people get to their destination are some examples of positive experiences that were mentioned. According to the O*NET database, urban bus driving requires a degree of social skills and social knowledge in addition to the mechanical knowledge of operating a bus (O*NET OnLine, 2010). The positive experiences that were mentioned during the interviews tended to focus on co-worker comradery and on helping people. These positive experiences help to answer the question *what it's like* to be a bus driver but the responses recorded during interviews failed to answer *where* these experiences are occurring.

Below are some selected quotes from interviews:

"You see wonderful people every day."

This driver said that helping people get to where they need to go makes her feel good. She also mentioned that sometimes she and other drivers will go out of their way to help someone get home. If there is still a passenger on the bus at the end of the night, perhaps having missed their stop, this driver will ask the dispatcher if they can re-route on the way back to the garage and drive the passenger home. Several drivers mentioned that they feel good about their job when they know they've helped someone.

"The support from my co-workers makes a big difference."

This quote came from a driver who had recently been physically assaulted while driving her route. I later learned her ordeal had been recently broadcast on the local news with security video of the assault having been released. I asked her how she was able to still come into work after being the victim of such an attack and she answered by discussing the support she had received from her co-workers and from the management. Interestingly, she had only been on the job for a few months before the timing of the attack. The driver maintained that she enjoyed her job and enjoyed the people she worked with.

"There are regular faces and you get used to seeing them. It's a good feeling."

Most of the drivers were able to think of and talk about one or more regular riders who they socialized with on a regular basis while on their route.

"Staying on the same route is more enjoyable because you get to know the route and know the riders."

Newer drivers are typically assigned to what is called 'switch board' which means they are available to be plugged in to wherever they are needed. Having a regular route was regarded as more enjoyable

because the driver would be familiar with the route and the regular passengers. Having to learn a new route was something that several drivers mentioned as being particularly stressful because of the uncertainty in what to expect. GPS is available to guide drivers on new routes, but drivers have to be on constant watch for bus stops in addition to driving safely through traffic. Driving on a previously worked route was also preferred by several female drivers because of familiarity with adequately clean places to stop and use the restroom.

Negative Experiences

Comments that dealt with negative experiences varied wildly. Responses ranged from having to deal with petty complaints from passengers to contending with physical assault. A recurring theme tended to be drivers' lack of empowerment to address tense situations that arise on the bus. The responses collected during the interviews helped to answer *what it's like* to be a bus driver. There was even some success in identifying general areas that help to answer *where* these experiences are occurring.

Below are some selected quotes from interviews:

"The complaints are so trivial! 'You're not close enough to the curb!' 'Why didn't you stop closer to the stop?!' "

This quote came from a driver who had recently started working at COTA only a few months prior to the project. This driver's main complaints were the pressure to stay on schedule and having to deal with the petty complaints from passengers such as driving too quickly. More senior drivers speculated that *this driver's* complaints were also trivial since she had not been on the job long enough to build up a tolerance to petty complaints.

“People are individually responsible for making the bus late, but they want to blame the driver for not being on time.”

Being on schedule was something that drivers mentioned as being stressful about their job. This driver explained that people not having their fare ready in their hand or taking time to get onto the bus contributes to the bus being off schedule and that the same passengers who waste time getting on and off the bus are generally the passengers who are first to complain about the bus being late.

“You just ride through campus praying that no one is going to jolt out in front of you.”

Ohio State University’s campus was frequently mentioned as a busy area because of the number of passengers getting on and off the bus. Additionally, the campus was mentioned because of the number of students that jaywalk across the main streets. The speaker of this quote mentioned that students always seem to be in a hurry and that many students had run out in front of her while she was driving the bus. Another driver mentioned that having to deal with drunken students, particularly on the weekends when COTA offers extended services, was sometimes troublesome.

“People would be surprised by the amount of stuff going on in a driver’s mind to make the ride smooth and safe. There is always so much to think about and something is always going on.”

I asked participants to talk about something that non-bus drivers might find surprising to know. This driver responded with the above quote. Several drivers made similar statements. Drivers are under constant pressure to have a heightened sense of awareness because of the number of responsibilities that drivers have from driving safely to policing passengers. One driver mentioned feeling like he was always ‘on’ and that the mental drain from having to be constantly alert was exhausting. A long list of ‘checks’ has to occur when arriving and departing each bus stop. Drivers must be aware of passengers waiting to board, passengers waiting to get off, auto traffic around them, and pedestrian traffic near

them. All of these mental safety 'checks' must be completed at very frequent intervals, as often as thirty seconds.

"Things going on outside the bus are more stressful than inside."

Many drivers talked about the stress of dealing with activities occurring outside the bus as being a source of work stress. COTA does not operate using dedicated bus lanes and so buses must frequently weave into and out of traffic in order to pick up and drop off passengers. No one wants to be inconvenienced by being stuck behind the bus and so cars are frequently coming around and passing in front of the bus which creates a sense of anxiety for the bus driver each time the bus has to stop.

"Our job is driving the bus—we're not police officers."

This driver was adamant about making it known that the drivers have few options when policing their passengers. One driver said to me that many passengers think a bus driver is going to intervene and protect them should something happen on the bus. But drivers are not armed and are not allowed to physically intervene when situations intensify and instead must notify a supervisor or call the police.

"We have all the responsibility but none of the authority."

A recurring theme when talking with drivers was that the responsibility of the organization was placed on them, yet they lacked the appropriate tools to deal with tough situations. For example, several drivers that were interviewed had been spit on by passengers. Being spit on is considered assault and the appropriate procedure is to call for a supervisor or to call the police. Drivers must also open the bus doors because attempting to detain an assaulter is considered holding someone against their will.

"You can't react like a normal human being would [when you're assaulted]."

This driver said this to me after telling me about an incident in which a passenger spit on him before exiting the bus. He said the frustration that he felt was overwhelming because he felt powerless to deal with the situation. This quote particularly struck me because this driver has to come to work every day knowing that he could lose his job for reacting on his instincts to defend himself.

Limitations

There were several limitations to the study, including: the experience of the researcher, the lack of direct incentive to participants for participating, a lack of advertising, the class differences between the researcher and the participant pool and hurdles created by the IRB consent forms.

The first day of interviews proved to be challenging. The coordinating for the logistics of conducting the interviews had been done through the Public Relations Manager at COTA and the interview setup was not ideal. I was given a table in one of two break rooms located in the main offices of COTA. Most of the day was spent sitting in the break room and waiting for a driver to participate. A lack of driver participation was largely the result of a lack of advertisement and awareness of the project. Flyers briefly explaining the study were placed on break room tables and each driver that walked into the room needed the project explained to them. Additionally, drivers coming into the break room were generally pressed for time and were more concerned with eating their meal and making it back to work on schedule rather than talking with me. One driver accused me of only wanting stories from the 'hood. Towards the end of the day, only one driver had been willing to sign the IRB consent form and take part in the project.

Due to the alarming lack of driver participation, my advisor and I discussed amending my approach to the interviews. I was advised to consider changing my appearance and my methodology. I made efforts not to look like a student. Rather than having my neon green laptop create a barrier between me and potential participants, I left it at home. I also wore a plain t-shirt and jeans rather than

clothing with university logos and I altered the sales pitch of my project by explaining it was a “project for school” rather than going into the details which generally turned off potential participants. These changes seemed to work. On the second day of interviews, more drivers were willing to talk with me and participate in the project.

The lack of monetary or other immediate compensation was also an impediment to project participation. Several drivers mentioned that they would have been willing to participate had there been a material incentive to participating. The length, scope, and funds of the researcher did not allow for material compensation.

The length and scope of the study created several limitations. Interviews were only conducted for a period of six days. Previous research on bus drivers has suggested and shown that longer studies that follow a group of drivers over a period of time tend to produce a richer and more complete picture. Future work on bus drivers’ daily experiences might be better served by a longer study that incorporates some form of daily logs or journals.

The interviewer’s lack of experience also created several limitations to the study. The research process from design to implementation was a daunting and sometimes overwhelming task. This project provided a great deal of learning opportunities about the research process that will be valuable going forward in future academic work. For example, the recruitment process was more difficult than originally anticipated and resulted in difficulty obtaining participants for the project. Future research efforts will make sure to use better coordinated efforts to adequately advertise and explain the study prior to arriving on site. Better coordination and partnership with the participant organization might have led to a better research experience and richer results. For example, bus drivers were in the midst of union negotiations with COTA management at the time of the study. Several participants, when asked

why they thought more drivers were not participating in the project, offered that other drivers may have been suspicious that the interviewer was present to spy on the drivers for the management.

The Institutional Review Board and its requirements also led to limitations and difficulties. The process of applying for IRB approval was a learning experience of its own. Several application revisions were required which led to delays in starting the project. Additionally, the consent to participate form created an additional hurdle in turning away potential participants who wanted nothing to do with forms. The complicated nature of the IRB application process led to the interviewer being unaware of the existence of consent waivers until after the interviews had been conducted.

The interview site could have been set up differently to allow for more privacy when speaking with participants. One driver mentioned that he felt that he was censoring himself because of a lack of privacy. In fact, several of the drivers that participated did so out of a sort of peer pressure or encouragement from other drivers. The research site was one of two break rooms at the main offices of COTA. The interviewer was set up at a table in the downstairs break room and placed advertisement flyers on the break room tables. Better coordination with COTA might have allowed for an interview setup that allowed for more privacy as well as more access to a greater number of potential participants.

Another limitation was whether or not the participants were being truthful or telling me what they thought I wanted to hear. I was skeptical of several responses that used overly flowery language about feeling good and making a difference when helping others. At the time I wondered if I was being given responses like this because of the ongoing union negotiations at the time. One driver mentioned to me that other drivers may have been hesitant to talk to me thinking that I was there to spy on drivers for management. The timing of the interviews and of the union negotiations was purely coincidence, but the poor timing added another layer to the hurdle of getting drivers to participate.

Reflections

The research process, from applying for IRB approval to coordinating the interviews, was a daunting and sometimes overwhelming experience. Many surprises, some good and some bad, sprang up throughout the experience and I've learned a great deal from all of them. I was able to fill out an IRB form and receive approval to conduct research. I had to think of my own research questions and design my own study. The first day's failure was a huge disappointment but also a great learning experience because I became conscious of all kinds of factors that I hadn't considered before, such as my appearance and presentation. Coordinating with the research site was at times challenging and stressful because the site contact was sometimes unresponsive to e-mails and phone calls. The site study location wasn't what I had anticipated. I thought that I had communicated my needs for both interview space as well as advertising to drivers, but clearly there was a miscommunication which created a less-than-ideal interview situation.

Several surprises that came up during the course of the project may be of interest for future work on this subject. There exists a social and economic network among a select group of drivers that serves as a sort-of offline Facebook in which drivers go to each other for various services. Many of the drivers were able to discuss activity hotspots with their co-workers but drivers had difficulty identifying hotspots during the interviews, generally saying that "the entire route" was problematic, for example. It appears that drivers are able to identify areas of activity along routes and so a future, more in-depth study may be able to better map the work experience.

Future Work

Occupational Economic and Social Network

Further investigation of this social and economic network that exists between some drivers might provide insight into the existence of potential 'offline Facebook' networks and raises the question of whether or not networks like this exist in other occupations and, if so, why do they exist? For example, the reason that many of the drivers are able to hold these alternate occupations and provide these alternate services is largely due to the unique work schedule that bus driving provides such as multi-hour breaks during a split shift.

Mixed-Methods/Qualitative GIS

This study was my first attempt at exploring the combination of qualitative methods and GIS. My attempts at mapping bus route activity hotspots resulted in inconclusive results as well as several learning experiences for future work. Future work on mapping everyday work experiences might consider the issue of map literacy with regards to participants. In the case of COTA bus drivers, participants who were shown maps of their routes had difficulty in interpreting the map correctly. Future work on mapping daily experiences might consider offering participants multiple options of 'georeferencing' their day. Example options might include multiple types of maps, interactive scalable maps, recording oral markers like roads and intersections, and having participants keep journals. Another issue that I encountered was drivers being unable or unwilling to identify specific areas or stretches of their route as being particularly stressful. But I know from riding with a driver on their route that they are able to identify particular areas or stretches that are troublesome. Future work on this subject might be better served by giving participants more time to consider the question or by having participants keep a log or journal of their experiences.

Policy Implications

Better understanding of what it's like to be a bus driver could lead to recommendations of policy changes that would not only improve the work experience of the drivers but also improve the service experienced by users. For example, most drivers who talked with me mentioned fare collection and car traffic as major contributors to stress. Bus rapid transit is a system that eliminates or significantly reduces both contributors by eliminating fare collection on the bus itself and by creating priority road lanes reserved for buses. By implementing bus rapid transit, transportation organizations might be able to provide both more efficient service as well as a more pleasant work experience. COTA is currently studying the feasibility of implementing bus rapid transit on its busiest bus route (route #1) through the use of a federal grant (COTA 2012).

It may also be interesting and insightful to consider a study that examines COTA drivers and health benefits and how they tie into the American healthcare system as a whole. Several drivers mentioned to me that they were primarily working at COTA for the health benefits or that they knew someone who was working only enough hours to qualify for benefits. Because of the unique structure of some of the driving shifts, some drivers are able to hold secondary jobs or run small businesses in addition to driving the bus. It's ironic that people are taking a job to receive health coverage when the job they are taking is the cause of so many ailments.

Partnering with a transit agency

Contact with the participant group was primarily coordinated through COTA's Public Relations Manager. Space in the main office's break room was given to the researcher but little coordination was otherwise made in getting access to the drivers. Perhaps future work would be better served by a longer-term study that partnered with a willing transit agency in order to conduct a more complete study.

Figures

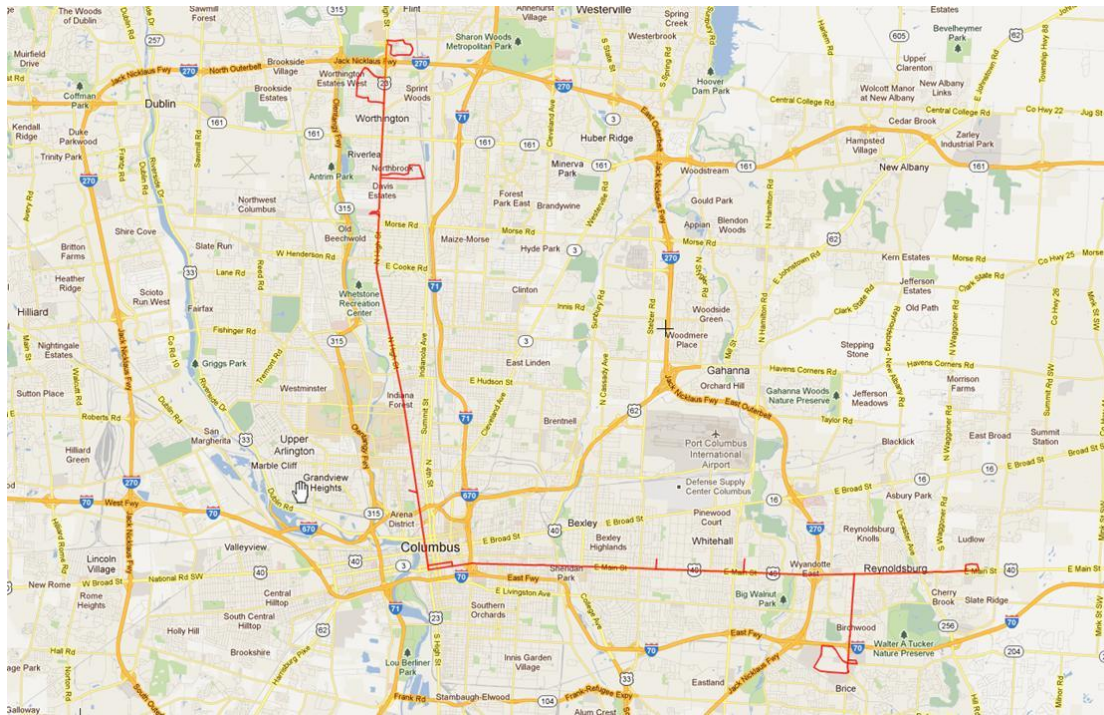


Figure 1. This screenshot shows a full extent of route number 2 on the COTA bus network.

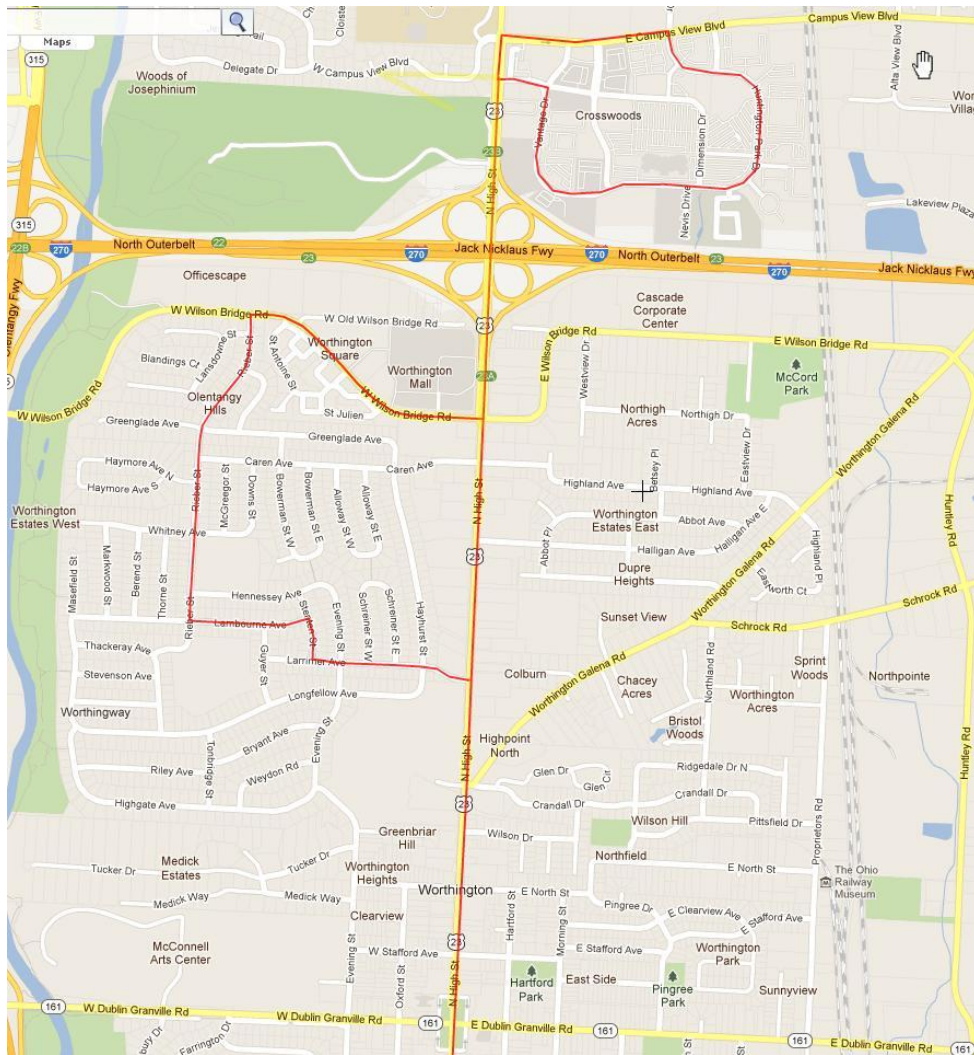


Figure 2. This screenshot shows a zoomed in view of the north terminus of route number 2 on the COTA bus network.

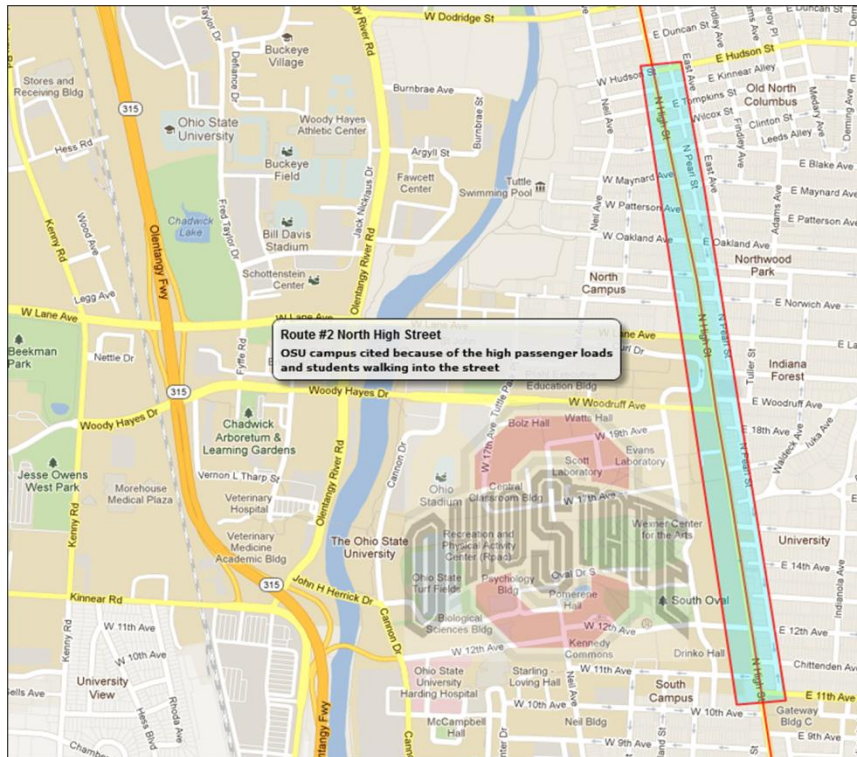


Figure 3. This screenshot demonstrates one area that was able to be identified as being particularly stressful. Most drivers had difficulty identifying specific locations of activity.

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